In general

$$\mu_2^2\rho > \mu_1^2\left(1-\frac{1}{x^2}\right)+2\mu_1\mu'\left(1-\frac{1}{x}\right)+\mu'^2\left(1+\frac{2}{1-x}+\frac{2\log x}{(1-x)^2}\right)$$

all these terms are negative. Hence the core is always stable for pulsations.

Substituting for u, v, w the time of pulsation is given by

$$16\pi^2a^2k_2^2\sqrt{\left\{\frac{\rho L_2+\frac{1}{2}\log 1/x}{\mu_2^2\rho-\mu_1^2\left(1-\frac{1}{x^2}\right)-2\mu_1\mu'\left(1-\frac{1}{x}\right)+\mu'^2\left(1+\frac{2}{1-x}+\frac{2\log x}{(1-x)^2}\right)}\right\}} \quad . \quad (81)$$

For a coreless ring this is

$$\frac{16\pi^2a^2k^2}{\mu_2}\sqrt{\log\frac{4}{k}}$$

which agrees with the value obtained in [I. § 14].

[Added April 3, 1886.—The cubic giving the times of vibration of a hollow ring of the same density as the fluid, and with no extra circulations, can be solved. The equation is

$$y^3-\frac{1-x^n}{1-x}y^2-\left\{n^2-\frac{n(1+x^n)}{1-x}+\frac{2(1-x^n)}{(1-x)^2}\right\}y+\frac{2n}{1-x}\left(n-\frac{1-x^n}{1-x}\right)=0.$$

The roots are

$$y=-n,\quad \frac{1}{2}\left(n+\frac{1-x^n}{1-x}\right)\pm\frac{1}{2}\sqrt{\left\{\left(n+\frac{1-x^n}{1-x}\right)^2-\frac{8}{1-x}\left(n-\frac{1-x^n}{1-x}\right)\right\}}$$

The corresponding times of vibration are $\frac{4\pi^2r^2}{\mu y}$, where r is the radius of the section.]

Errata in Paper on "Steady Motion and Small Vibrations of a Hollow Vortex," Phil. Trans., Vol. 175.

1. Page 188, line 6 from bottom, the coefficient of k^2 in U is wrong, since the full value of ψ_0 was not substituted.
2. Page 191, line 4, *for* $1-2k^2$ *read* $1+2k^2$.
3. „ „ 6, *for* $(L-\frac{5}{2})$ *read* $L-\frac{1}{2}$.
4. „ „ 7, the coefficient of k^2 is $\frac{3}{2}(L-\frac{1}{2})^2$.
5. In § 13 the effect of the surface velocity in modifiying the normal motion of the wave motion has been neglected. The time of vibration there given is therefore wrong. The correct value is given in the foregoing discussion in § 17.